

**EXAMPLE 1**

on p. 356  
for Exs. 3–17

CW#SIH

**SIMPLIFYING RATIOS** Simplify the ratio.

3. \$20:\$5

4.  $\frac{15 \text{ cm}^2}{12 \text{ cm}^2}$

5. 6 L:10 mL

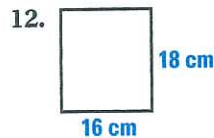
6.  $\frac{1 \text{ mi}}{20 \text{ ft}}$

7.  $\frac{7 \text{ ft}}{12 \text{ in.}}$

8.  $\frac{80 \text{ cm}}{2 \text{ m}}$

9.  $\frac{3 \text{ lb}}{10 \text{ oz}}$

10.  $\frac{2 \text{ gallons}}{18 \text{ quarts}}$

**WRITING RATIOS** Find the ratio of the width to the length of the rectangle. Then simplify the ratio.**FINDING RATIOS** Use the number line to find the ratio of the distances.

14.  $\frac{AD}{CF}$

15.  $\frac{BD}{AB}$

16.  $\frac{CE}{EF}$

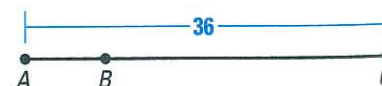
17.  $\frac{BE}{CE}$

**EXAMPLE 2**

on p. 357  
for Exs. 18–19

18. **PERIMETER** The perimeter of a rectangle is 154 feet. The ratio of the length to the width is 10:1. Find the length and the width.

19. **SEGMENT LENGTHS** In the diagram,  $AB:BC$  is 2:7 and  $AC = 36$ . Find  $AB$  and  $BC$ .

**EXAMPLE 3**

on p. 357  
for Exs. 20–22

**USING EXTENDED RATIOS** The measures of the angles of a triangle are in the extended ratio given. Find the measures of the angles of the triangle.

20. 3:5:10

21. 2:7:9

22. 11:12:13

**xy ALGEBRA** Solve the proportion.

42.  $\frac{2x+5}{3} = \frac{x-5}{4}$

43.  $\frac{2-s}{3} = \frac{2s+1}{5}$

44.  $\frac{15}{m} = \frac{m}{5}$

45.  $\frac{7}{q+1} = \frac{q-1}{5}$

46. **ANGLE MEASURES** The ratio of the measures of two supplementary angles is 5:3. Find the measures of the angles.

47. **★ SHORT RESPONSE** The ratio of the measure of an exterior angle of a triangle to the measure of the adjacent interior angle is 1:4. Is the triangle *acute* or *obtuse*? *Explain* how you found your answer.

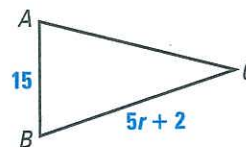
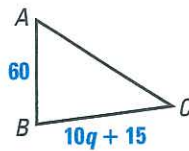
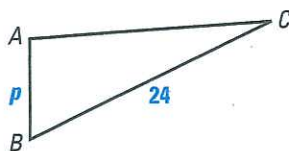
48. **★ SHORT RESPONSE** Without knowing its side lengths, can you determine the ratio of the perimeter of a square to the length of one of its sides? *Explain*.

**xy ALGEBRA** In Exercises 49–51, the ratio of two side lengths for the triangle is given. Solve for the variable.

49.  $AB:BC$  is 3:8.

50.  $AB:BC$  is 3:4.

51.  $AB:BC$  is 5:9.



52. **★ MULTIPLE CHOICE** What is a value of  $x$  that makes  $\frac{x}{3} = \frac{4x}{x+3}$  true?

(A) 3

(B) 4

(C) 9

(D) 12

53. **AREA** The area of a rectangle is 4320 square inches. The ratio of the width to the length is 5:6. Find the length and the width.

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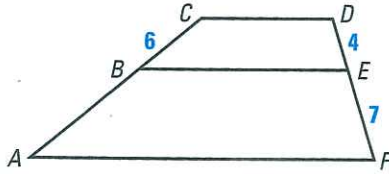
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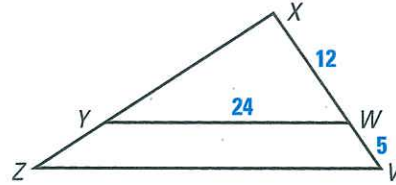
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**PROPERTIES OF PROPORTIONS** Use the diagram and the given information to find the unknown length.

11. Given  $\frac{CB}{BA} = \frac{DE}{EF}$ , find BA.

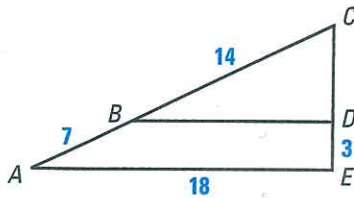


12. Given  $\frac{XW}{XV} = \frac{YW}{ZV}$ , find ZV.



**PROPERTIES OF PROPORTIONS** Use the diagram and the given information to find the unknown length.

16. Given  $\frac{CA}{CB} = \frac{AE}{BD}$ , find BD.



17. Given  $\frac{SQ}{SR} = \frac{TV}{TU}$ , find RQ.

